torch, which heater means is disposed radially relative to said preform and is associated with material supply means, so as to enable the preform to be manufactured in successive passes corresponding to the preform and the torch being displaced relative to each other, certain ones of the passes carried out with material being supplied and certain other ones of the passes being carried out without material being supplied, so that each successive pass leads to a new layer of material being deposited on the preform when material is supplied and to the most recent layer deposited being glazed when material is not supplied, said method interposing a one-ended reduction in the length of at least one layer, during a pass and starting from one new layer that is an intermediate layer, while a succession of concentric layers of material are being deposited on the preform in a manner such that the respective lengths of the layers, which lengths are determined by the relative displacements between the torch and the preform, are progressively shortened as a result of a progressive reduction in the lengths of the displacements, so that the thickness of deposited material that covers the preform and a portion of each of the end-pieces decreases uniformly towards the ends, said one-ended reduction in layer length leading to a limitation of the thickness of material deposited on one of the end-pieces and on a limited-length preform zone that is longitudinally adjacent to said end-piece, at the level set by the layer deposited immediately prior to said one-ended reduction, and

wherein the one ended reduction in the length is greater than a reduction in length of an immediate prior layer from a second to the immediate prior layer.

Claim 6 (Amended). A method according to claim 1, providing a reduction in layer length that satisfies a non-linear decreasing relationship, at least beyond the layer whose length is reduced at one end and that is deposited first, and at that end of the preform at which said reduction is provided, and wherein the non-linear decreasing relationship is satisfied prior to a first drawing of the preform for separation from one of the end-pieces.

Please add the following new claims:

Claim 9. (New) A method of manufacturing a preform, comprising:

providing a core for the preform having a first end and a second end;

supporting the core at the first end and the second end for rotation about a core axis; and

depositing successive concentric layers of material on the core while rotating the core, said step of depositing successive concentric layers including:

first, depositing on the core one or more of the successive concentric layers of material that extend from a first plane orthogonal to the core axis and near the first end of the core to a second plane orthogonal to the core axis and near the second end of the core;

second, depositing on the core additional successive concentric layers of material that extend from the first plane to a third plane orthogonal to the core axis and offset from the second plane in a direction of the first plane, so that the preform has fewer concentric layers of material between the second plane and the third plane than between the first plane and the third

plane, thereby defining a neck portion of the preform between the second plane and the third plane with a diameter that is less than a diameter of the preform between the first plane and the third plane.

Claim 10. (New) The method according to claim 9, wherein a distance from the core axis to an outer periphery of the perform after the step of depositing successive concentric layers of material on the core while rotating the core is in accordance with a first function between the second end and of the core and the second plane, a second function between the second plane and the third plane, and a third function between the third plane and the first plane, and wherein the second function is different than the first function and the third function.

Claim 11. (New) The method according to claim 10, wherein the second function is a straight line parallel to the core axis.

Claim 12. (New) The method according to claim 10, wherein the firs function is the same as the third function.

Claim 13. (New) The method according to claim 9, wherein the offset of the third plane from the second plane is between 10 mm and 200 mm.

Claim 14. (New) The method according to claim 9, wherein the core is supported at the first and second ends by respective first and second end pieces, and wherein a diameter of the neck portion of the preform is greater than a diameter of the second support piece and is less than 70 mm.

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Claim 15. (New) The method according to claim 9, wherein the successive concentric layers of material are made of silica and are deposited on the core with a plasma torch.

Claim 16. (New) The method according to claim 14, wherein the successive concentric layers of material are deposited by relatively moving the plasma torch with respect to the core in a direction parallel to the core axis.

Claim 17. (New) The method according to claim 15, wherein a distance of the offset is greater than respective distances between successive ends of the additional successive layers nearest the offset.